April 13, 2022

Council on Environmental Quality
730 Jackson Place NW
Washington, D.C. 20503

Submitted via Regulations.gov

RE: Council on Environmental Quality Carbon Capture, Utilization, and Sequestration Guidance – Docket No. CEQ-2022-0001

Dear Chair Mallory,

Environmental Defense Fund (EDF) submits the following comments on the Council on Environmental Quality's (CEQ) recently issued Carbon Capture, Utilization, and Sequestration (CCUS) Guidance.

EDF agrees with the emphasis placed by CEQ on the importance of "responsible" deployment of CCUS where these technologies are necessary in meeting our collective Net-Zero goals and preventing the worst impacts of climate change – including the need to permanently sequester "significant quantities of carbon dioxide." Among other things, responsible deployment to meet this need must at its core incorporate robust environmental justice and equity protections alongside practices and legal regimes that ensure technical and environmental integrity of carbon sequestration.

To this end, EDF offers the following comments regarding select aspects of the Guidance:

1. **Facilitating Federal Decision Making on CCUS Projects and Carbon Dioxide Pipelines**

Exercising caution in build out of CO2 infrastructure: EDF agrees that the volumes of permanent sequestration needed to meet Net-Zero objectives will likely require expansion of transport and connectivity networks, including pipelines. In addition to the requirements for advanced monitoring and enforcement to prevent leakage emphasized by the Guidance, it is equally vital to ensure that the build out of infrastructure occurs only where necessary. While extensive analysis exists suggesting a strong need for carbon dioxide pipelines, an efficient buildout of pipeline capacity cannot be defined in advance of strong indications from the

marketplace regarding how much capacity is needed and where. This suggests that a nationwide buildout of infrastructure is premature.

CEQ's commitment to ensuring pipeline buildout actions are aligned with climate, economic, and public health objectives by convening relevant agencies to assess opportunities for improvement in carbon dioxide permitting is a good start. Environmental justice and equity should be added to the list of relevant objectives.

Further, given the recent safety issues with CO2 pipelines and wide public concern about the potential for impacts from their expanded use, EDF underscores the high importance of CEQ's recommendations that agencies consider updating risk assessment criteria, emergency response planning and training, and other protocols for safety, monitoring, and enforcement.

Clarifying and Emphasizing the Importance of Filling a Protection Gap and Adopting Comprehensive Offshore Geologic Sequestration Regulations: Regulations for the siting, construction, operation, monitoring, and verification of secure storage for offshore carbon dioxide geologic sequestration on the Outer Continental Shelf (OCS) do not currently exist – representing a significant and serious protection gap. This gap presents a risk for not only the marine environment and climate, but also the validity and strength of the U.S.'s carbon sequestration and climate mitigation claims at large. The IIJA amendments to OSCLA calling on the Department of Interior (DOI) to promulgate regulations to support CCUS activities in the OCS related not only to the granting of leases, easements, and rights-of-way but also included statutory language requiring that such carbon sequestration must "prevent the carbon dioxide from reaching the atmosphere" and that leases for sub-seabed injection are specifically "for the purpose of long-term carbon sequestration."

EDF encourages CEQ to reinforce the importance of including comprehensive provisions regarding the siting, construction, operation, monitoring, verification, and long-term demonstration of secure geologic storage in order to meet these statutory objectives. A DOI rulemaking that does anything less than establish a global standard for the environmental and climate integrity of geologic sequestration offshore will not align with an objective of responsible CCUS deployment.

Increasing Transparency of Geologic Carbon Sequestration Activities and Claims: EDF strongly agrees with CEQ regarding the importance of transparency in geologic sequestration and supports CEQ's recommendation of enhanced CCUS-related provisions in EPA's Greenhouse Gas Reporting Program. In particular, it is vital that all US-sanctioned, incentivized, or permitted mechanisms for the geologic sequestration or utilization of carbon, including all projects receiving 45Q tax credits, are properly reported, verified, and incorporated into our national inventory for not only transparency, but also accuracy.

2. Public Engagement and Interdisciplinary Research

EDF recognizes the valid environmental justice and equity challenges posed by even responsible CCUS deployment. These considerations are not trivial and proactive work on the part of agencies and industries alike is long-overdue in terms of moving from evaluation and consultation to results and actions that truly benefit communities burdened by industrial activities. CEQ's prioritization of this work is important and commendable, but EDF also recognizes that many have voiced concern that the guidance falls short. To that end, EDF encourages CEQ to more directly call on agencies to swiftly bring together leaders on environmental justice alongside regulators and policymakers to collaboratively consider and establish a more in-depth set of principles that focus on actionable outcomes. "Responsible" deployment demands that this important work not fall behind incentivized and rapid deployment of CCUS regulatory programs and projects. They must go hand in hand.

3. Understanding Environmental Impacts

Study and Monitoring of Environmental Impacts Should Precede or, at a Minimum, be Standard Requirements for Demonstration and Commercialization of CCUS Projects and Agency Regulatory Program Buildout:

EDF strongly agrees with CEQ's recommendations that agencies better study the air quality implications of CCUS activities alongside other related environmental impacts or benefits that may occur from deployment of these practices and projects. This work is particularly vital as a complement to sincere efforts to directly address environmental equity and justice considerations tied to CCUS activities. These efforts should focus on new facilities as well as retrofits of existing facilities. EDF offers two examples of vital research in this arena, showcasing the need for study of both impacts and benefits:

- Understanding the potential for co-benefits from the reduction of other criteria air pollutants: Based on recent and ongoing studies, EDF understands that the deployment of carbon capture at certain types of facilities – including pulp and paper mills, refinery FCC units, cement facilities, and others – can come with potentially substantial co-benefits in terms of the reduction of key air pollutants such as SO2, NOx, PM and ammonia. CEQ should encourage the appropriate entities to undertake serious research to better understand this potential, including how to incentivize or require actions to enhance removal of these pollutants with carbon capture and verify outcomes.

- Thorough examination of risks posed from amine solvents utilized in certain capture systems: Impacts related to the presence and potential release of nitrosamines (a toxic carcinogen associated with the breakdown of amine solvents) may pose serious hazards to workers and the public near capture facilities utilizing certain amine solvents in post-combustion capture processes. In part due to limitations in publicly available knowledge and claims of proprietary information tied to a variety of emerging amine solvents (such as those that might reduce costs by using less energy), this risk and its associated solutions are not well characterized in the literature or represented in regulatory and

permitting risk-based requirements. EDF recommends that CEQ encourage DOE to devote immediate resources to advanced study of this potentially significant risk to ensure technical knowledge and protective regulatory provisions are in place swiftly to avoid negative outcomes from an expansion of capture facilities if this issue is overlooked.

In addition, as referenced in the Guidance specifically, geologic sequestration projects in the OCS must consider impacts on living marine resources and water column chemistry. EDF strongly supports CEQ's recommendation that DOE, EPA, DOI, and NOAA collaborate on studies needed to understand these impacts – but would also encourage these agencies to collaborate *now* on putting forth regulatory language that ensures proactive protections are in place in the currently active DOI rulemaking to the furthest extent of current scientific and technical knowledge. Work to understand and monitor these impacts cannot only occur long after DOI adopts and implements a leasing and permitting program. Where gaps exist, provisions requiring additional monitoring and study should be incorporated into the regulatory and permitting program, alongside a process for modifying permitted conditions where new information deems appropriate. This same concept should apply to all areas where the U.S. is developing new regulatory programs to support the expansion of CCUS deployment.

4. Carbon Capture and Utilization and Carbon Dioxide Removal

EDF respectfully offers a correction on the notion that transparency sufficient to build public confidence can be accomplished through life-cycle analyses "and/or" the establishment of standards or certifications for products. Of course, while all of these things have the potential to help move the ball forward, they are insufficient alone. What is *vital* beyond studies or standards alone is industry-wide, transparent compliance with comprehensive regulations that establish protocols that *make sure* projects have quantifiable and demonstrated climate benefits combined with discrete actions addressing environmental equity and justice considerations.

EDF recommends ensuring consistent, standardized terminology regarding carbon management solutions: Given the diversity of carbon management solutions, there is a general lack of consistency in the field's terminology. This is illustrated in this Guidance document: the Department of Energy uses CCUS to refer to point-source carbon dioxide capture, while the definition used in this guidance document also includes DAC, usually considered a CDR technology. EDF recommends that the U.S. Government adopt a standardized and consistent definition across all agencies, driving greater clarity in the field and avoiding additional confusion.

EDF supports the LCA repository: EDF strongly supports the idea of creating a life-cycle analysis repository. As carbon management technologies advance, coordination among the agencies and leveraging common strategies will be critical to ensure consistent and effective LCA methodologies and data. EDF further agrees that this coordination will likely facilitate responsible and efficient federal procurement of CCU, CCUS, and CDR technologies, a critical tool to achieve the Administration's net-zero objectives.

5. Long-term Stewardship and Liability

EDF has one final recommendation that we believe should be addressed — making sure that federal agencies protect the integrity of traditional regulatory and legal principles as necessary to hold operators accountable when they fail to live up to their responsibilities. Such rules encourage operators to do as good and thorough a job as technically feasible. The absence of such rules would significantly weaken incentives for good performance, threatening the integrity of CCS projects and hurting public confidence in the activity. Fortunately, EPA rules clearly hold operators responsible for harms that manifest even after wells have been plugged and a site has been "closed." EPA's preamble to the Class VI rule discusses this plainly. Hopefully DOI's upcoming rules for the OCS will be equally clear on this. International standards, such as the European Union's framework for CCS also draw clear lines on the retention of liability for cases including deficient data, negligence, failure to exercise due diligence, and more.

To date, most states have kept faith with these principles. But some states are making efforts to undermine this important feature of the legal and regulatory system by absolving operators of liability, in some cases civil liability as well as regulatory liability, as soon as a state issues a "closure certificate" — even if it later turns out that closure requirements have not actually been met. As suggested above, such policies are inconsistent with EPA requirements, will tend to encourage mediocre operations or worse, and will weaken public support for CCS. Their perceived necessity for competitive investment is unfounded, and – even if liability relief were a true driver of investment – raises questions about this industry and its investors' commitment to doing work of the highest quality. At the end of the day, carbon sequestration can be a long-game solution for climate, but operators and those that regulate them must be wholly committed to projects that assure long-term secure storage and meet other goals. Modification of liability rules as a part of a government-run, long-term stewardship program can make sense, but only where that "relief" does not run the risk of incentivizing subpar projects. In other words, states should not create moral hazard in their efforts to craft liability provisions aiming to attract investment – creating a situation where operators lack sufficient incentive to decrease their exposure risk because they will not face significant consequences if projects eventually fail or have negative effects.

Accordingly, EDF suggests that CEQ emphasize the importance of incentives for quality operations to all federal and state agencies working on the development of regulatory programs for CCS. While EDF is generally supportive of states with strong regulatory programs receiving primacy for UIC Class VI, it is in EPA's best interest to assess the legal regimes of states that reduce the liabilities of storage operators to determine whether a state has created moral hazard and to deny or revoke primacy for such states. In addition, we suggest that DOE proceed cautiously if at all when making subsidies available to projects in states that take this approach.

Conclusion

EDF appreciates the opportunity to provide input on this important guidance and looks forward to the opportunity to work collaboratively with CEQ and across the suite of applicable federal agencies towards the objective of responsible deployment of these technologies.

Respectfully Submitted,

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